



# SERVICE MANUAL

## MODEL "ROYAL 1000"

### ALL TRANSISTOR TRANSOCEANIC

### PORTABLE RECEIVER

#### CHASSIS 9CT40Z2

#### *To the Serviceman*

#### GENERAL

The transistor portable chassis is a conventional super-heterodyne receiver using an individual mixer and oscillator to produce the 455 Kc intermediate frequency. The intermediate frequency amplifiers are conventional. It is necessary to use neutralization in the I.F. amplifier stages as in circuits using a triode tube. The 103-22 diode is used as a detector and AVC voltage source. This diode is part of I.F. Transformer T4. This is then followed by a first audio amplifier and a driver stage for the class B push pull output. The 121-47 output transistors are a matched pair and will be coded with paint dots, red, white, yellow and green. Should one transistor fail it must be replaced with another 121-47 transistor with corresponding color. Do not use 121-47 transistors in pairs unless their color codes are identical.

The iron core slugs of the RF, mixer and oscillator coils have hex-holes through their centers. This will enable the technician to tune the top slug then drop alignment wrench No. 68-32 down through the slug to adjust the slug in the lower coil.

Power Supply — Eight Zenith Z2NL 1½ volt or Standard Flashlight Batteries total 12 volts D.C. Approximate battery life 300 hours. One Zenith Z2NL 1½ volt or Standard Flashlight Battery for the dial light.

#### Frequency Ranges:

540 to 1600 Kc	11.4 to 12.3 Mc
2 to 4 Mc	14.6 to 15.8 Mc
4 to 9 Mc	17.1 to 18.5 Mc
9.4 to 10.1 Mc	20.7 to 22.5 Mc

Intermediate Frequency: 455 Kc

Power Output Undistorted: 500 Milliwatts

Speaker: 4 inch P.M.

Alnico V, Voice Coil Impedance — 3.2 ohms @ 1000 cycles

Accessory Earphone 39-22 Impedance 15 ohms @ 1000 cycles

#### RESISTANCE MEASUREMENTS

When making resistance measurements in the circuit, it is most important to remove the transistors in the circuit under test otherwise readings obtained will be incorrect. This is the direct result of a transistor acting as a diode.

When making measurements across an electrolytic capacitor, be certain the ohm meter leads are correctly polarized; also be certain the battery voltage of the meter does not exceed the working voltage of the capacitor. Otherwise damage to the capacitor may result.

#### VOLTAGE READINGS

It is suggested that a VTVM with an excellent low range scale be used to measure all circuit voltages. All voltages indicated on the accompanying diagrams have been measured under no signal conditions and a carbon battery supply voltage of 12.0 volts. Under these no signal conditions, a check can be made of the batteries. With carbon batteries, the total voltage should be 12.0 volts.

#### COMPONENT REPLACEMENT

When soldering components at the base of the transistor socket, it is suggested that the transistor be removed to avoid any possibility of excessive heat being transferred through the socket to the transistor. When soldering the low voltage electrolytics and germanium diodes, it is suggested that the wire be held with a pair of long nose pliers while soldering. The long nose pliers will act as a heat sink.

#### TRANSISTORS

At the present time we do not know of any satisfactory commercially available transistor tester.



If the transistor is suspected of being defective for any other reason than a barrier short, the only reliable check is to substitute a new transistor and then check performance. There is a possibility that if transistors are replaced in the IF or RF circuit, these circuits may need re-alignment as the result of slight differences in transistor characteristics.

#### SIGNAL TRACING

Past practices used in radiorepair commonly known as "Screw driver testing" in which the B + at the plate of the tube is shorted to ground to check for "clicks" in the speaker, is definitely not recommended. This practice would be comparable to shorting the collector of a transistor to ground which could damage the transistor. Standard point to point signal checking with the proper RF, IF and audio signals, should only be used.

#### REPAIR EQUIPMENT

The following list of equipment is what we recommend and use for repair of transistor chassis:

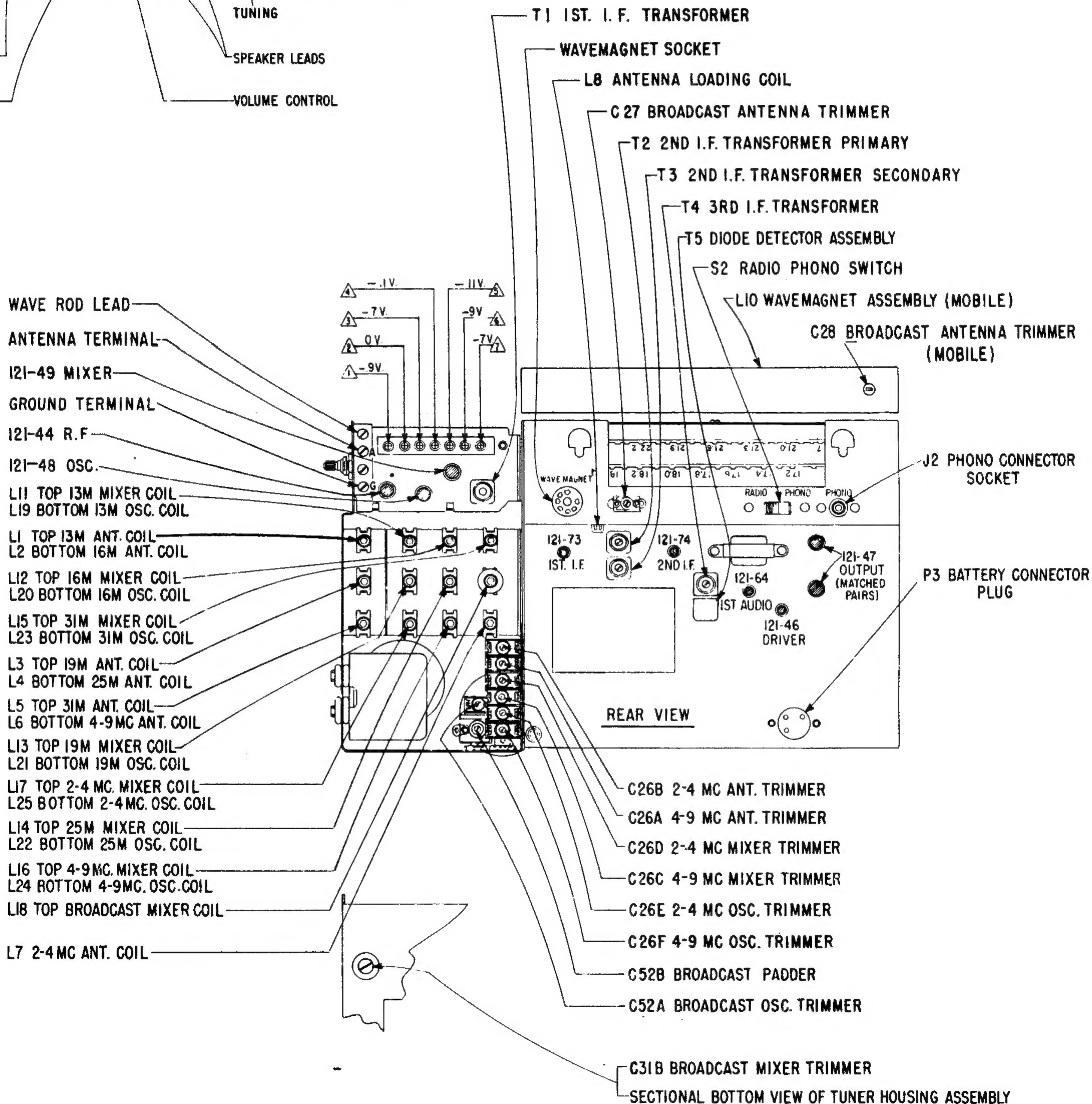
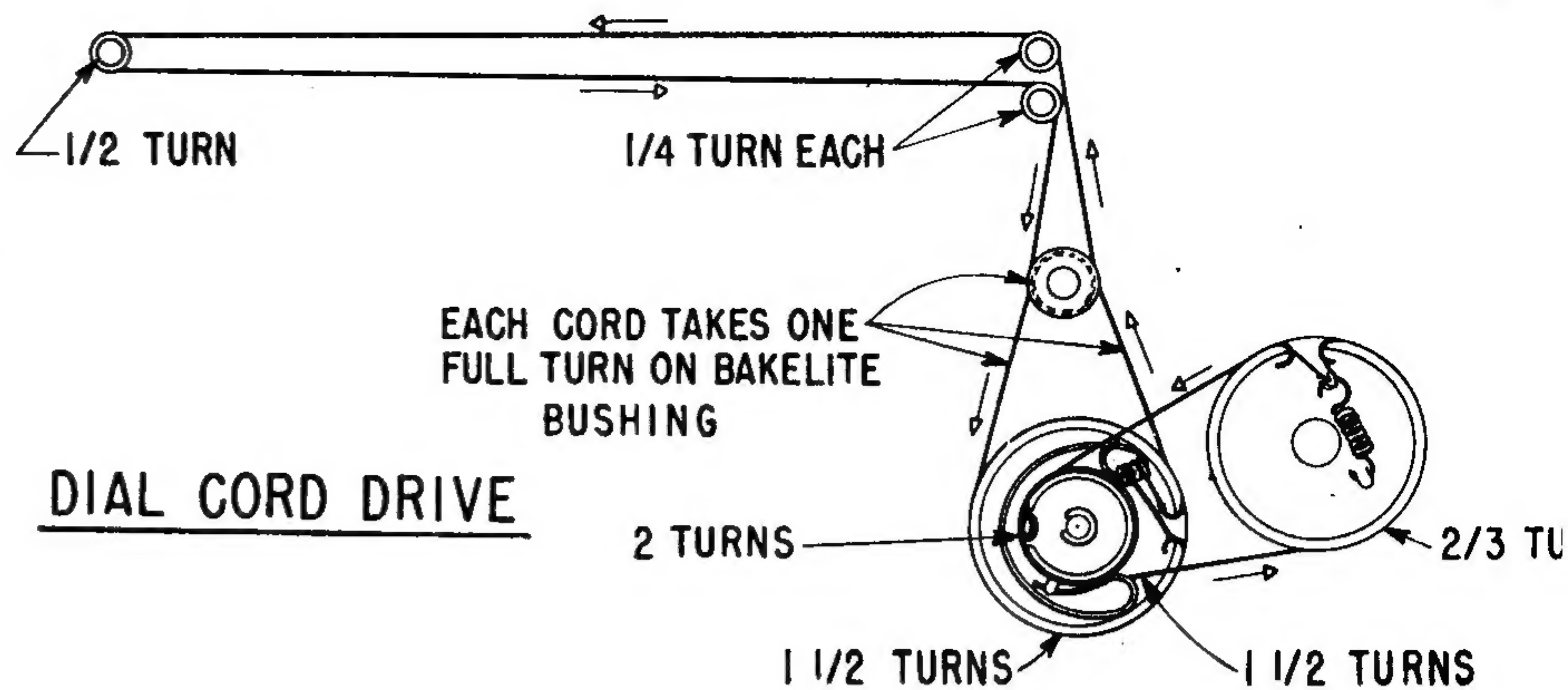
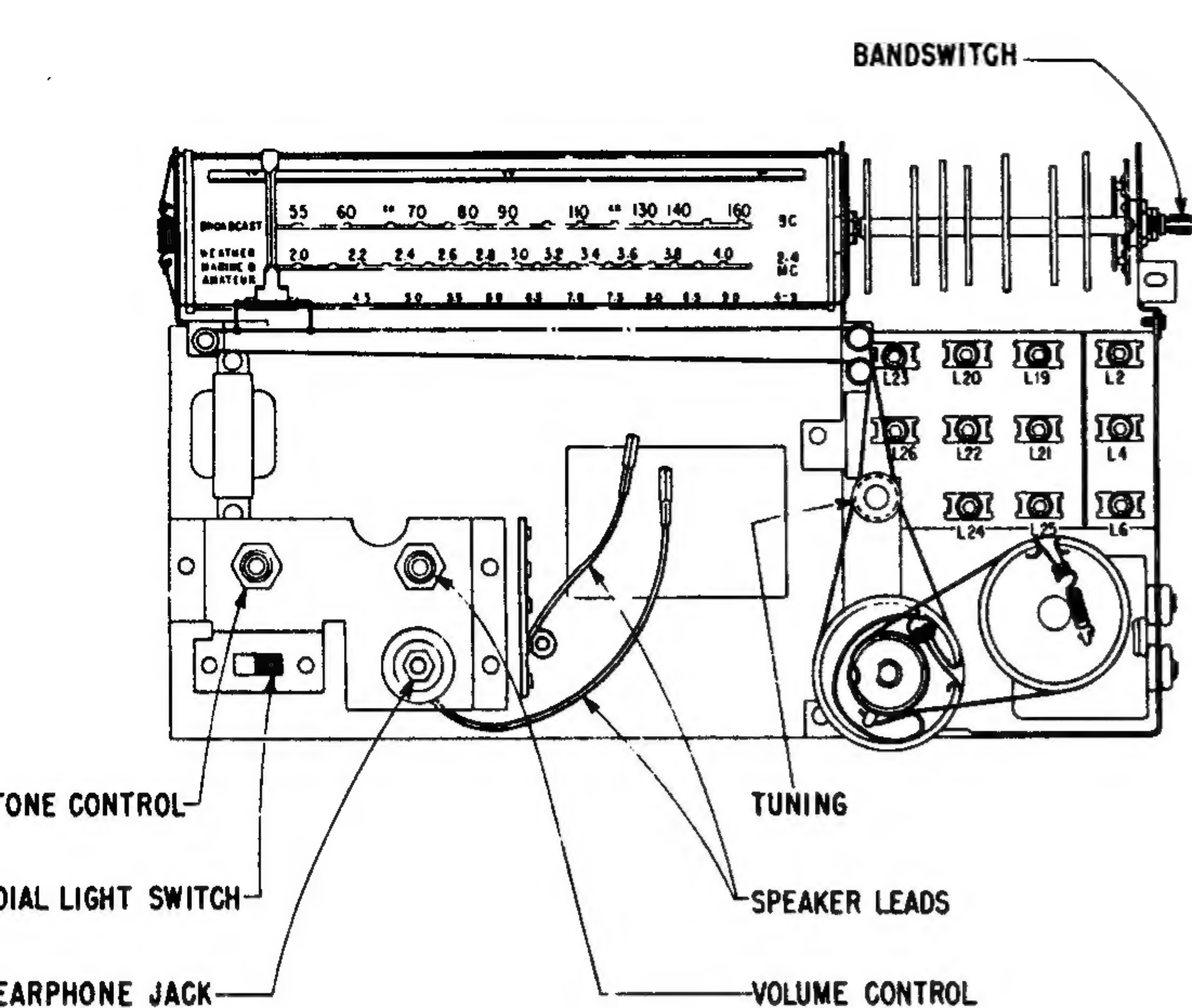
1. An RF signal generator supplying frequencies from 455 Kc to 23 Mc.
2. An audio generator or an audio signal source to be used for signal tracing after the diode detector.
3. A VTVM with a good low range voltage scale and a reliable resistance scale.
4. M209B Dazor floating lamp & magnifier or equivalent.
5. A set of optometrist tools—pliers, cutters, picks, etc.
6. A soldering iron with a very fine tip, not to exceed 35 watts.

#### ALIGNMENT PROCEDURE

OPER.	CONNECT GEN. TO DUMMY ANTENNA	INPUT SIG. BAND FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	One turn loop coupled loosely to Broadcast Wavemagnet	455 Kc BC	1600 Kc	T1, T2, T3, T4	Align I.F.
* 2	One turn loop coupled loosely to Broadcast Wavemagnet	600 Kc BC	600 Kc	Rock gang, Adjust C 52B	Alignment of BC at 600 Kc
3	One  Turn Loop Coupled  Loosely to  Broadcast Wavemagnet	1600 Kc BC	1600 Kc	C52A	Set osc. to scale
4		REPEAT OPERATIONS 2 & 3			
* 5		600 Kc BC	600 Kc	Rock, adjust L18	Alignment of B.C. mixer at 600 Kc
6		1400 Kc BC	1400 Kc	C31B	Alignment B.C. mixer
7		REPEAT OPERATIONS 5 & 6			
8		1400 Kc BC	1400 Kc	C27	Alignment of B.C. ant.
9		One turn loop coupled loosely to Detachable Wavemagnet	1400 Kc BC	1400 Kc	C28
* 10	3 Feet  of Wire  Approximately  1 Foot  and Parallel  from  Extended  Waverod	2.1 Mc 2-4 Mc	2.1 Mc	Rock L25, L17, L7	Alignment of S.W. osc., mixer & antenna
11		3.9 Mc 2-4 Mc	3.9 Mc	C26E, C26D, C26B	Alignment of S.W. osc., mixer & antenna
12		REPEAT OPERATIONS 10 & 11			
* 13		4.25 Mc 4-9 Mc	4.25 Mc	Rock L24, L16, L6	Alignment  of  Short Wave  Oscillator,  Mixer and  Antenna
14		8.75 Mc 4-9 Mc	8.75 Mc	C26F, C26C, C26A	
15		REPEAT OPERATIONS 13 & 14			
16		9.7 Mc	31 meters	9.7 Mc L23, L15, L5	
17		11.8 Mc	25 meters	11.8 Mc L22, L14, L4	
18		15.2 Mc	19 meters	15.2 Mc L21, L13, L3	
19		17.8 Mc	16 meters	17.8 Mc L20, L12, L2	
20		21.6 Mc	13 meters	21.6 Mc L19, L11, L1	

\* NOTE: Rock tuning condenser when making alignment under Operations 2, 5, 10, 13.





TRANSISTOR and TRIMMER LAYOUT



CHASSIS PARTS  
Chassis 9CT40Z2

PART NO.	DIA. NO.	DESCRIPTION	PRICE
19-322		Coil mtg. clip (23 pt. of S-42118)	.05
19-331		Spring clip (used on S-42118)	.10
22-3	C18	.01 mfd. ceramic disc - 500V	.30
22-6	C40	470 mmf. ceramic disc - 1KV	.25
22-11	C11,18, 44,45	.0033 mfd. ceramic disc - 500V (3 used)	.25
22-17	C17	.001 mfd. ceramic disc - 1KV	.25
22-18	C41	.0022 mfd. ceramic disc - 500V	.25
22-1392	C28, 34	25 mmf. ceramic - 500V (2 pt. of S-42118)	.33
22-1665	C24	5 mmf. ceramic - 500V (pt. of S-42118)	.25
22-1761	C29, 33	50 mmf. ceramic - 500V (2 pt. S-42118)	.25
22-2372	C10	22 mmf. ceramic - 500V	.25
22-2729		.001 mfd. ceramic disc - 25V (2 used)	.25
22-2893	C43	12 mfd. electrolytic - 50V	1.10
22-2884	C20, 21	3 mfd. electrolytic - 12V (2 used on S-47501)	1.50
22-2969		6 section trimmer (2-4 Mc & 4-9 Mc ant., mixer & osc. used on S-43365)	3.00
22-2972	C30, 30A,B C,D	3 section variable (used on S-42118)	6.00
22-2979	C35	60 mmf. ceramic - 500V	.30
22-2981	C39	2700 mmf. mica - 500V (pt. of S-42118)	1.00
22-2982	C38	4300 mmf. mica (pt. of S-42118)	1.50
22-2983	C26,27	Trimmer (BC ant. fixed)	.35
22-2984	C19	10 mfd. electrolytic - 12V	1.00
22-2985	C15	500 mfd. electrolytic - 12V	2.00
22-2998	C46	.1 mfd. mylar tubular - 50V	.35
22-3034	C1,2, 3,5,6, 14,31, 32,42	.05 mfd. ceramic disc - 25V (9 used)	.45
22-3045	C22,23	.047 mfd. mylar - 50V (2 used on S-47501)	.40
22-3105	C37A, B	Section trimmer (BC padder)	1.50
22-3108	C36	100 mmf. ceramic - 500V (pt. of S-42118)	.25
22-3158	C8,13	7 mmf. ceramic disc - 500V (2 used)	.25
22-3198	C7,11	2 x .05 mfd. ceramic disc - 25V (2 used)	.50
44-34		Miniature jack - headphone jack (used on S-47501)	.90
54-139		3/8-32 x 9/16 hex. palnut (1 mts. ea. 85-591, 63-4623 & 4624)	.03
54-142		5-40 x 1/4 x 3/32 hex. nut (2 used on 85-591)	.03
54-345		1/4-32 x 3/8 hex. nut - brass (mts. 44-34)	.03
54-421		Socket retaining nut (1 used on ea. 78-1063 & 1096)	.03
57-2385		Sw. mtg. plate (used on S-43365)	.20
58-235		3 prong plug (battery connector)	.15
59-330		Dial pointer	.50
61-137		Idler pulley (3 used)	.10
63-1740		82 ohm 1/2W ins. 10%	.17
63-1743		100 ohm 1/2W ins. 10%	.17
63-1744		100 ohm 1/2W ins. 20%	.17
63-1761		270 ohm 1/2W ins. 10%	.17
63-1771		470 ohm 1/2W ins. 10%	.17
63-1772		470 ohm 1/2W ins. 20%	.17
63-1775		560 ohm 1/2W ins. 10%	.17
63-1779		680 ohm 1/2W ins. 20%	.17
63-1782		820 ohm 1/2W ins. 10% (4 used)	.17
63-1786		1000 ohm 1/2W ins. 20% (4 used)	.17
63-1793		1500 ohm 1/2W ins. 20% (2 used)	.17
63-1796		1800 ohm 1/2W ins. 10%	.17
63-1800		2200 ohm 1/2W ins. 20% (2 used)	.17
63-1803		2700 ohm 1/2W ins. 10%	.17
63-1806		3300 ohm 1/2W ins. 10% (2 used)	.17
63-1813		4700 ohm 1/2W ins. 10%	.17
63-1814		4700 ohm 1/2W ins. 20%	.17
63-1817		5600 ohm 1/2W ins. 10%	.17
63-1824		8200 ohm 1/2W ins. 10%	.17
63-1827		10 K ohm 1/2W ins. 10% (2 used)	.17
63-1828		10 K ohm 1/2W ins. 20%	.17
63-1834		15 K ohm 1/2W ins. 10%	.17
63-1848		33 K ohm 1/2W ins. 10%	.17
63-1852		39 K ohm 1/2W ins. 10%	.17
63-1862		68 K ohm 1/2W ins. 10%	.17
63-1875		150 K ohm 1/2W ins. 5%	.34
63-1880		180 K ohm 1/2W ins. 10%	.17
63-1898		470 K ohm 1/2W ins. 20%	.17
63-1904		680 K ohm 1/2W ins. 10%	.17
63-1912		1 megohm 1/2W ins. 20%	.17
63-1933		3.3 megohm 1/2W ins. 20%	.17
63-3392		1500 ohm 1/10W ins. 10%	.17
63-3663		Thermistor	1.10
63-4537		6.8 ohm 1/2W ins. 20% (2 used)	.17
63-4623		Vol. control & Sw. (used on S-47501)	2.05
63-4624		Tone control (used on S-47501)	1.40
68-32		Adjusting wrench	.60
78-644		Connector socket - phono	.15
78-1063		Transistor socket - 3 contact (6 used)	.35
78-1096		Transistor socket - 4 contact (3 used)	.35
78-1097		Wavemagnet socket	.25
80-402		Drive cord tension spring	.04
80-1180		Drive cord tension spring	.35
80-1189		Drive cord tension spring	.15
80-1230		Spring (cable retaining)	.30
83-2145		5 lug terminal strip	.10
83-2627		2 lug terminal strip (2 used)	.05

CHASSIS PARTS  
Chassis 9CT40Z2

PART NO.	DIA. NO.	DESCRIPTION	PRICE
83-2641		5 lug terminal strip	.10
83-2673		6 lug terminal strip	.10
83-2770		7 lug terminal strip - grip type (pt. of S-42112)	.20
83-2822		Ant. terminal strip (pt. of S-42112)	.50
85-495		Radio - phono - switch D.P.D.T.	5.18
85-591		Band switch (pt. of S-42118)	9.00
86-199		Terminal (pt. of S-43365)	.03
86-237		Connector terminal (1 pt. of ea. S-21997 & 21999)	.03
86-306		Terminal	.03
93-966		Lockwasher (2 used on 85-591)	.03
93-1043		Spring washer (used on S-42149)	.10
94-334		Capacitor mtg. bushing (3 mt. 22-2972)	.03
95-1563		1st I.F. transformer (used on S-42112)	2.50
95-1564		2nd I.F. primary transformer	2.50
95-1565		2nd I.F. secondary transformer	2.50
95-1683		Output transformer	4.50
95-1684		Driver transformer	5.00
100-218		Dial light lamp (2 used on S-42148)	.15
103-22		Crystal diode	.75
113-8		6-32 x 1/4 x 1/4 hex. hd. mach. screw lockwasher att. (2 used)	.03
113-9		8-32 x 1/4 x 1/4 hex. hd. mach. screw - lockwasher att. (2 used) on S-47501)	.03
113-13		6-32 x 7/16 x 1/4 hex. hd. mach. screw - lockwasher att. (3 used on 22-2972)	.03
114-193		8-32 x 3/16 x 1/4 hex. hd. self - tap - screw (4 mt. S-43365, 2 used on 57-2385, 3 on 85-591 & 2 mt. R.F. shelf)	.03
114-442		8-32 x 5/16 hex. hd. self - tap - screw flat washer att. (used on 80-1230)	.03
114-444		8-32 x 3/8 hex. hd. mach. screw flat washer att. (used on 80-1230)	.05
114-456		8-32 x 1/4 hex. hd. mach. screw - flat washer att. (2 used on S-43623)	.03
114-571		4-24 x 3/16 x 3/16 hex. slot hd. self tap screw (2 mt. S-42148)	.03
121-44		Transistor - R.F.	5.00
121-46		Transistor - driver	
121-47		Transistor - output (2 used)	5.90
121-48		Transistor - oscillator	5.00
121-49		Transistor - mixer	5.00
121-64		Transistor - audio	2.15
121-73		Transistor - 1st I.F.	2.50
121-74		Transistor - 2nd I.F.	2.50
125-94		Rubber grommet (3 used on S-43365)	.03
126-857		Coil shield	.05
126-887		Coil shield	.10
126-888		Coil shield	.05
126-899		Coil shield	.10
149-86		Iron core (pt. of S-42080)	.10
149-211		Iron core (1 pt. of ea. S-42082, 42083, 42084, 42085, 42086, 42087, 42088, 42089, 42090, 42091, 42092, 42093, 42094, 42095, 42096, 42097, 42098, 42099, 42100, 42101, 42102, 42103 & 43433)	.10
188-149		Retaining ring (1 used on ea. S-41768 & 41779)	.03
199-241		Paper sleeve	.03
S-17638		Drive cord & eyelet assem. - tuning	.10
S-21997		Terminal & wire assem.	.15
S-21999		Terminal & wire assem. (used on S-47501)	.15
S-41768		Dual pulley (used on S-43365)	.50
S-41779		Tuning shaft & pulley assem. (used on S-43365)	.80
S-42080		Ant. loading coil	.60
S-42082		Osc. coil (2-4 Mc. - pt. of S-42118)	.60
S-42083		Osc. coil (4-9 Mc. - pt. of S-42118)	.60
S-42084		Osc. coil (31M - pt. of S-42118)	.60
S-42085		Osc. coil (25M - pt. of S-42118)	.60
S-42086		Osc. coil (19M - pt. of S-42118)	.60
S-42087		Osc. coil (16M - pt. of S-42118)	.60
S-42088		Osc. coil (13M - pt. of S-42118)	.60
S-42089		Ant. coil (2-4 Mc. - pt. of S-42118)	.60
S-42090		Ant. coil (4-9 Mc. - pt. of S-42118)	.60
S-42091		Ant. coil (31M - pt. of S-42118)	.60
S-42092		Ant. coil (25M - pt. of S-42118)	.60
S-42093		Ant. coil (19M - pt. of S-42118)	.60
S-42094		Ant. coil (16M - pt. of S-42118)	.60
S-42095		Ant. coil (13M - pt. of S-42118)	.60
S-42096		Mixer coil (BC - pt. of S-42118)	.60
S-42097		Mixer coil (2-4 Mc. - pt. of S-42118)	.60
S-42098		Mixer coil (4-9 Mc. - pt. of S-42118)	.60
S-42099		Mixer coil (31M - pt. of S-42118)	.60
S-42100		Mixer coil (25M - pt. of S-42118)	.60
S-42101		Mixer coil (19M - pt. of S-42118)	.60
S-42102		Mixer coil (16M - pt. of S-42118)	.60
S-42103		Mixer coil (13M - pt. of S-42118)	.60
S-42112		R.F. shelf bracket - terminal strip assem. (used on S-43365)	1.00
S-42118		Bandswitch & coil assem. (return - for - repair)	



# CHASSIS PARTS

Chassis 9CT40Z2

PART NO.	DIA. NO.	DESCRIPTION	PRICE
S-42148		Dial light socket & wire assem. (used on S-42149)	1.25
S-42149		Dial drum	5.00
S-42163		Drive cord & eyelet assem. pointer	.20
S-42653		Drive cord, eyelet & spring assem.	.35
S-42723		Elastic cord & staple assem.	.10
S-43258		3rd I.F. transformer & diode assem.	6.00
S-43365		R.F. housing, pulley & stud assem. (mts. S-42118)	2.00
S-43433		Osc. coil (BC - pt. of S-42118)	.60
S-43623		Pulley & bracket assem. (used on S-43365)	.80
S-43686		Coil mtg. bracket (pt. of S-42118)	.50
S-47501		Control mtg. bracket, sw. & strip assem.	

## CABINET PARTS

Model Royal 1000 D

PART NO.	DIA. NO.	DESCRIPTION	PRICE
Z-2NL		1.5 V. "A" battery "D" (use 9)	
12-2463		Rear door latch (pt. of S-48168)	.25
12-2604		Support bracket	.95
15-108		Socket cap (pt. of S-48171)	.10
15-191		Plug cap (used on 58-233)	.20
16-1362		Packing carton	
24-1001		Battery case cover	
27-257		Paper disc (4 used)	.03
36-205		Handle - bottom section (mts. S-42207)	1.25
43-311		Wavemagnet housing - fixed (used on S-42184)	.75
46-1809		Tuning knob	2.00
46-1810		Release knob (used on S-42183)	1.25
46-1811		Tone control knob	.50
46-1812		Ant. knob (pt. of S-42207)	.25
46-1825		Selector knob (Band sw.)	1.25
46-1893		Vol. control knob	.50
49-829		4" PM speaker	6.00
54-12		6-32 x 1/4 x 3/32 hex. nut (3 mt. ea. 57-2372 & 2373)	.03
54-444		Speed nut - tinnerman (9 mt. 192-236)	.03
54-445		Speed nut - tinnerman (1 used on ea. 114-87)	.05
54-455		Speed nut - tinnerman (4 used on 57-2389)	.03
54-467		Speed nut - tinnerman (12 used)	.03
57-1725		Emblem plate (used on log chart door)	.25
57-2208		Emblem plate (used on 138-148)	.25
57-2371		Cabinet top plate (mts. 43-311)	5.25
57-2372		End plate - left	8.00
57-2373		End plate - right	8.00
57-2379		Trim plate (band selector - used on 57-2373)	1.25
57-2380		Trim plate (used on 57-2372)	1.25
57-2386		Hinge plate (1 used on ea. 57-2372 & 2373)	.25
57-2389		Escutcheon plate (used on 138-148)	3.75
57-2414		Nameplate (Zenith - pt. of S-42190)	.90
57-2415		Band selector indicator plate (used on 46-1825)	1.25
57-2416		Trim plate - tuning	.80
58-233		7 prong connector plug (used on S-42184)	.55
64-710		Brass eyelet (used on S-48168)	.04
64-725		Rivet (2 used on S-44814)	.03
76-923		Release lever shaft	.10
76-954		Ant. pivot hsg. shaft	.15
78-1101		3 contact socket (pt. of S-48171)	.20
80-1168		Spring - rear door latch	.25
80-1176		Selector knob spring (used on 46-1825)	.10
80-1181		Torsion spring (used on S-42206)	.15
80-1228		Spring - handle	.30
83-2489		Rubber strip (3 used on 57-2371)	.03
83-2741		Trim strip (used on 138-148)	.50
83-2742		Support strip (1 used on ea. 57-2372 & 2373)	.25
83-2785		Rubber strip (2 used on S-42183)	.05
83-2865		Spacer strip (5 used)	.03
83-2930		Retaining strip	.03
86-299		Terminal	.03
86-310		Terminal	.05
86-323		Spade terminal (used on S-42206)	.03
93-166		Lockwasher (6 used)	.03
93-565		Steel washer (4 used on 57-2371)	.03
93-1289		Fibre washer (pt. of S-48171)	.03
93-1301		Felt washer (1 used with ea. 54-444)	.03
93-1324		Steel washer	.03
94-957		Selector knob hub (used on 46-1825)	.75
94-985		Spacer bushing (4 pt. of S-41850)	.05
110-348		Vinyl material (2 used on end plates)	.30

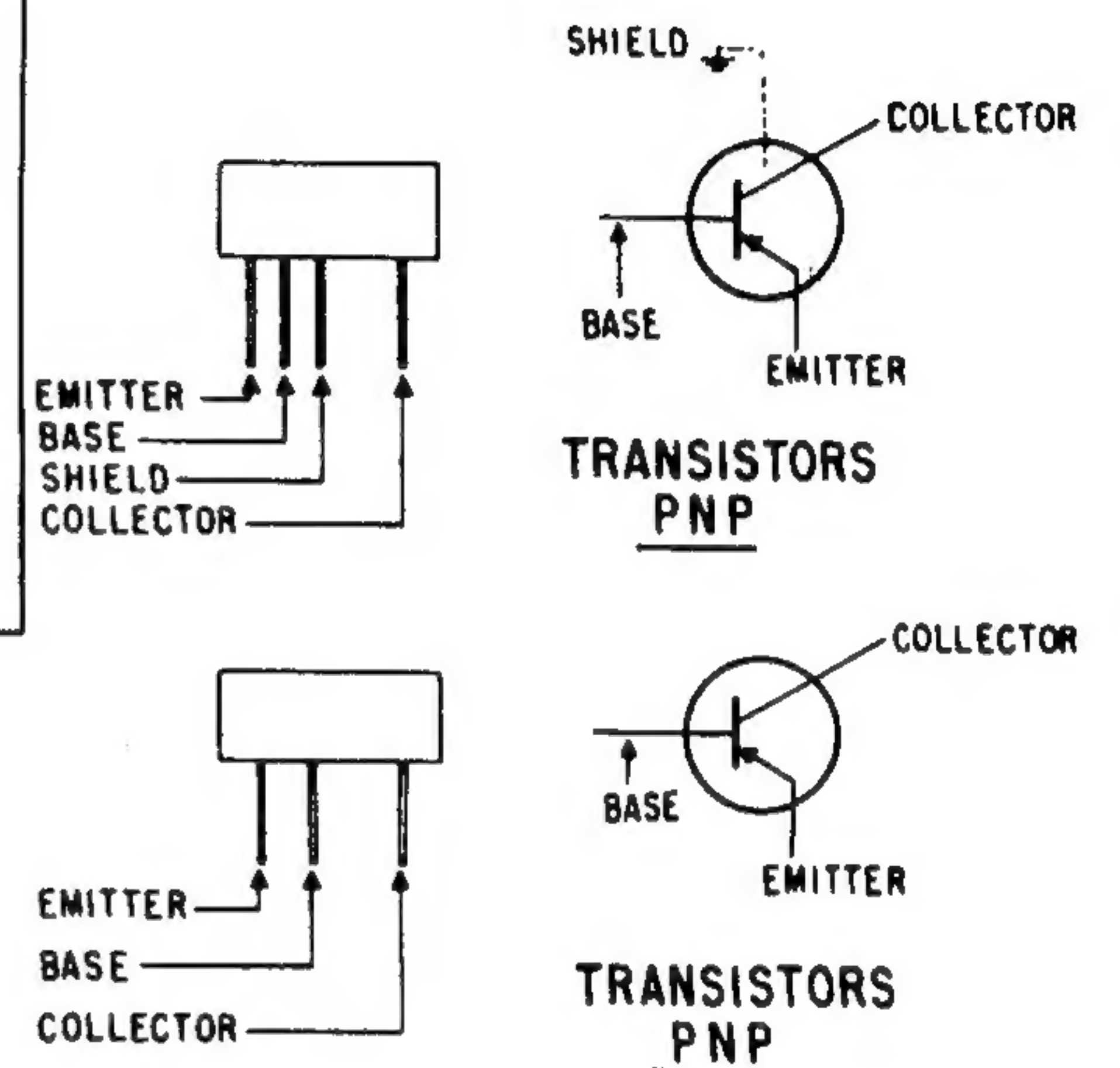
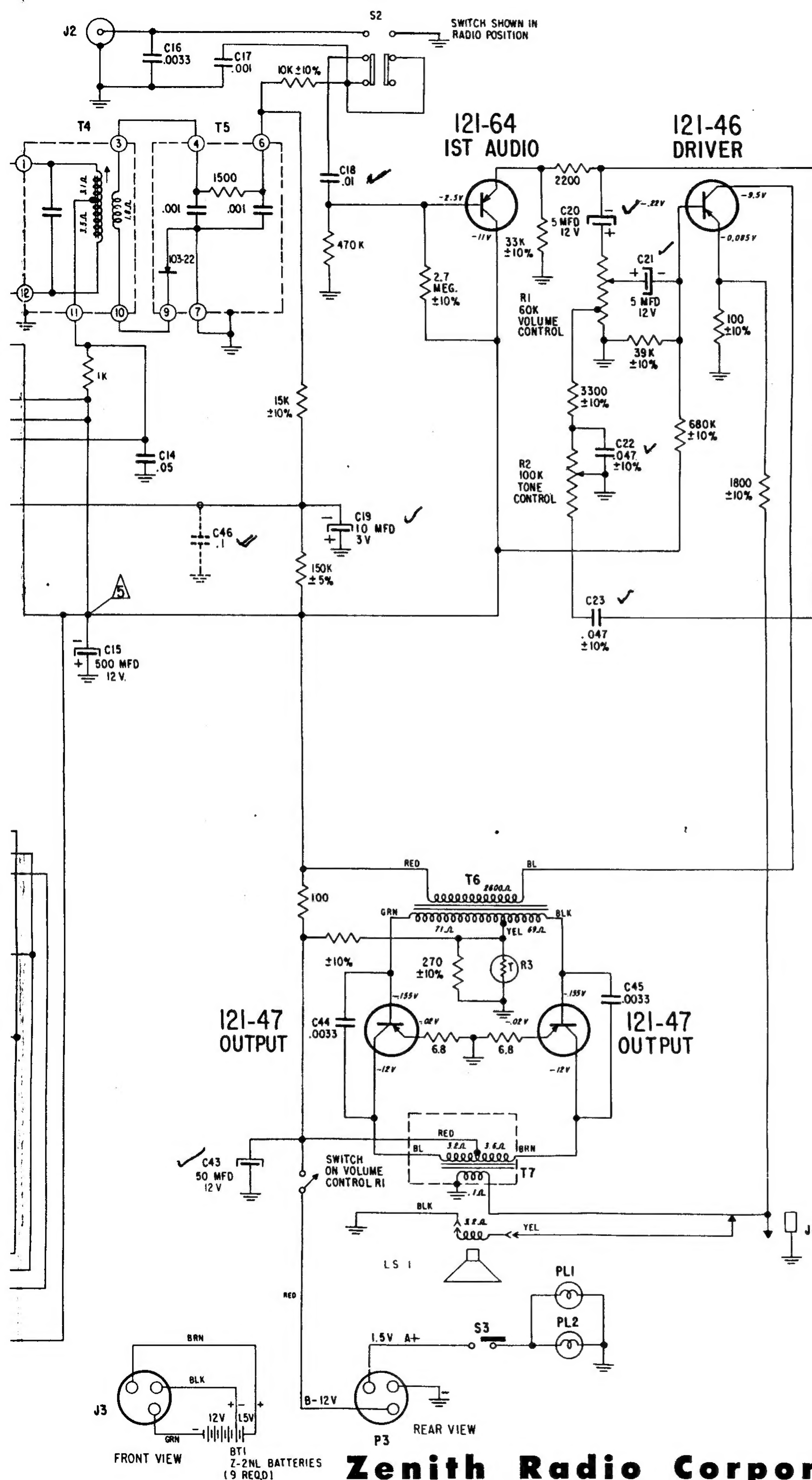
# CABINET PARTS

Model Royal 1000 D

PART NO.	DIA. NO.	DESCRIPTION	PRICE
110-349		Vinyl material (cabinet support brkt.)	1.00
110-350		Vinyl material - lower front door (pt. of S-42190)	.75
110-351		Vinyl material - rear door (pt. of S-48168)	1.30
110-352		Vinyl material - inside top door (pt. of S-44814)	.55
112-535		6-20 x 3/8 Phils. pan hd. self tap screw (4 used)	.03
112-1113		4-40 x 7/32 Phils truss hd. mach. screw (4 used)	.03
112-1123		2-32 x 11/32 Fillister hd. self tap screw (3 used on S-43259)	.03
112-1124		4-24 x 11/32 Fillister hd. self tap screw (4 used on S-43259)	.03
112-1140		8-18 x 1/4 Phils rd. hd. self tap screw (4 mt. 57-2371)	.04
112-1150		4-40 x 1/4 Phils. rd. hd. mach. screw (2 used on S-42190)	.03
112-1156		4-24 x 1/4 Phils. flat hd. self tap screw (4 pt. of S-42190)	.05
112-1190		5-20 x 3/16 Phils. pan hd. self tap screw (6 pt. of S-48168)	.03
112-1205		2-56 x 3/16 slot pan hd. self tap screw (4 mt. S-42193 & pt. of S-42190)	.03
112-1215		4-24 x 3/8 Phils. Fillister hd. self tap screw (5 used on 83-2741)	.03
112-1225		4-40 x 3/16 Phils. hd. mach. screw (2 used on ea. S-41780 & 41850)	.03
113-95		6-20 x 1/4 x 1/4 hex. hd. self tap screw lock washer att.	.05
114-87		8-18 x 1/2 x 1/4 hex. hd. self tap screw (2 used)	.03
114-572		4-24 x 3/16 x 3/16 hex. hd. self tap screw (1 used on ea. S-41778 & 41780)	.03
114-615		6-20 x 5/16 hex. hd. self tap screw (2 used on 57-2416)	.03
114-616		6-32 x 5/16 x 1/4 hex. hd. mach. screw (3 used on ea. 57-2372 & 2373)	.03
114-620		6-32 x 5/16 x 1/4 hex. hd. mach. screw flatwasher att. (2 used)	.03
117-206		Handle release lever	1.75
138-148		Grille (used on S-41850)	2.00
138-168		Background grille	.60
152-266		Handle support block	.30
166-97		Plastic bumper (4 used on S-41850)	.05
166-105		Rubber bumper (5 used)	.03
166-106		Bumper (2 used)	.03
188-177		Knob clamping ring (used on 46-1809)	.03
188-226		Retaining ring (pt. of S-48168)	.03
192-236		Dial crystal	5.00
196-302		Trim plate gasket	.15
202-1299		Shortwave program list	.15
202-1342		Specifications book	
202-1353		Instruction book	.60
202-1357		Shortwave chart book	2.50
202-1586		Service notes	
S-41778		Spring & stud assem. - R.H. (used on 57-2373)	.30
S-41780		Spring & stud assem. - L.H. (used on 57-2372)	.30
S-41850		Cabinet support bracket	5.00
S-42183		Wavemagnet mtg. strip & latch spring assem. (used with S-42184)	.75
S-42184		WAVEMAGNET	3.50
S-42190		Lower door	
S-42193		Log chart ret. plate & compass disc assem. (pt. of S-42190)	4.50
S-42206		Ant. pivot hsg., sleeve & shaft assem. (used with S-42207)	2.50
S-42207		Telescopic antenna	5.50
S-42212		WAVEMAGNET (mobile)	7.50
		22-2983 trimmer (used on S-42297)	.35
		83-2785 Rubber strip (2 used)	.05
		93-1289 Fibre washer (pt. of S-42298)	.03
		112-850 6-20 x 3/8 Phils. pan hd. Screw (2 used)	.05
		S-42297 WAVEMAGNET winding	3.00
		S-42298 cable plug	1.75
		S-42329 cover & suction cup assem.	1.25
		S-42330 housing & stud assem.	1.00
S-43259		Handle & pin assem.	1.00
S-43325		Support brkt., trim & vinyl assem.	8.50
S-44814		Top door, trim strip & vinyl assem.	6.50
S-48168		Rear door & bushing assem.	
S-48171		Battery housing, contact & wire assem.	

All prices shown are suggested retail prices which include Federal Manufacturers' Excise Tax where applicable and are subject to change without notice.





#### NOTES:

1. ALL RESISTORS  $\pm 20\%$  TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
2. RADIO PHONO SWITCH SHOWN IN RADIO POSITION.
3. RESISTANCE VALUES IN OHMS. CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
4. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
5. D.C. VOLTAGES SHOWN ARE MEASURED WITH NO SIGNAL USING A A.C.-D.C. OR VACUUM TUBE VOLT-METER.
6. NUMBERS IN TRIANGLES INDICATE VOLTAGE TEST POINTS AND REFER TO NUMBERS IN TRIANGLES ON I23-1675 TRANSISTOR AND TRIMMER LAYOUT
7. NO SIGNAL CURRENT DRAIN IS 14.5 MA.
8. USE ONLY ZENITH NON-INDUCTIVE ELECTROLYTIC CONDENSERS FOR REPLACEMENT. IF ANY OTHER TYPE OF ELECTROLYTIC IS USED, IT WILL BE NECESSARY TO ADD C46 SHOWN IN DOTTED LINES.

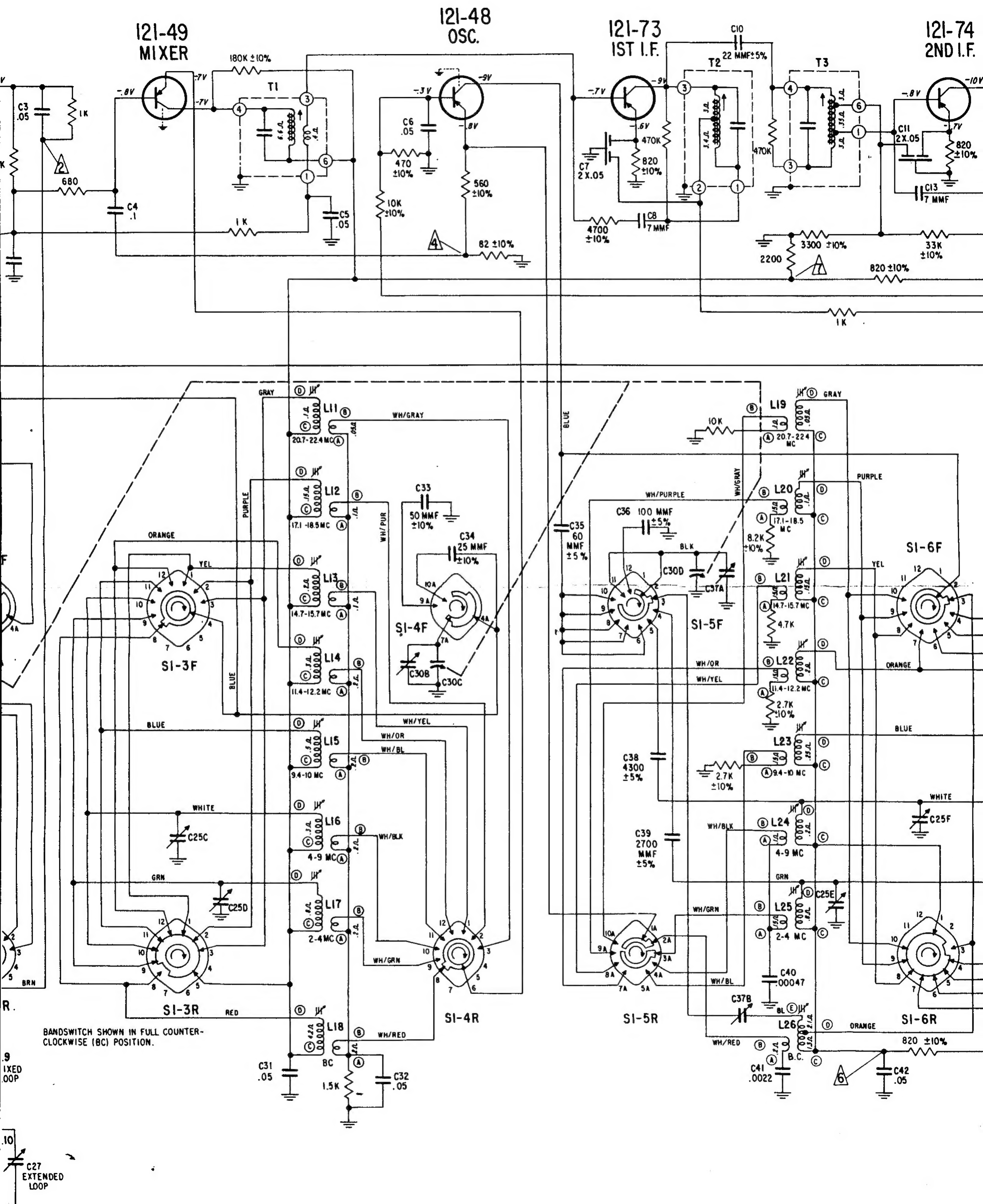
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4001 Dickens Ave Chicago 39 Ill

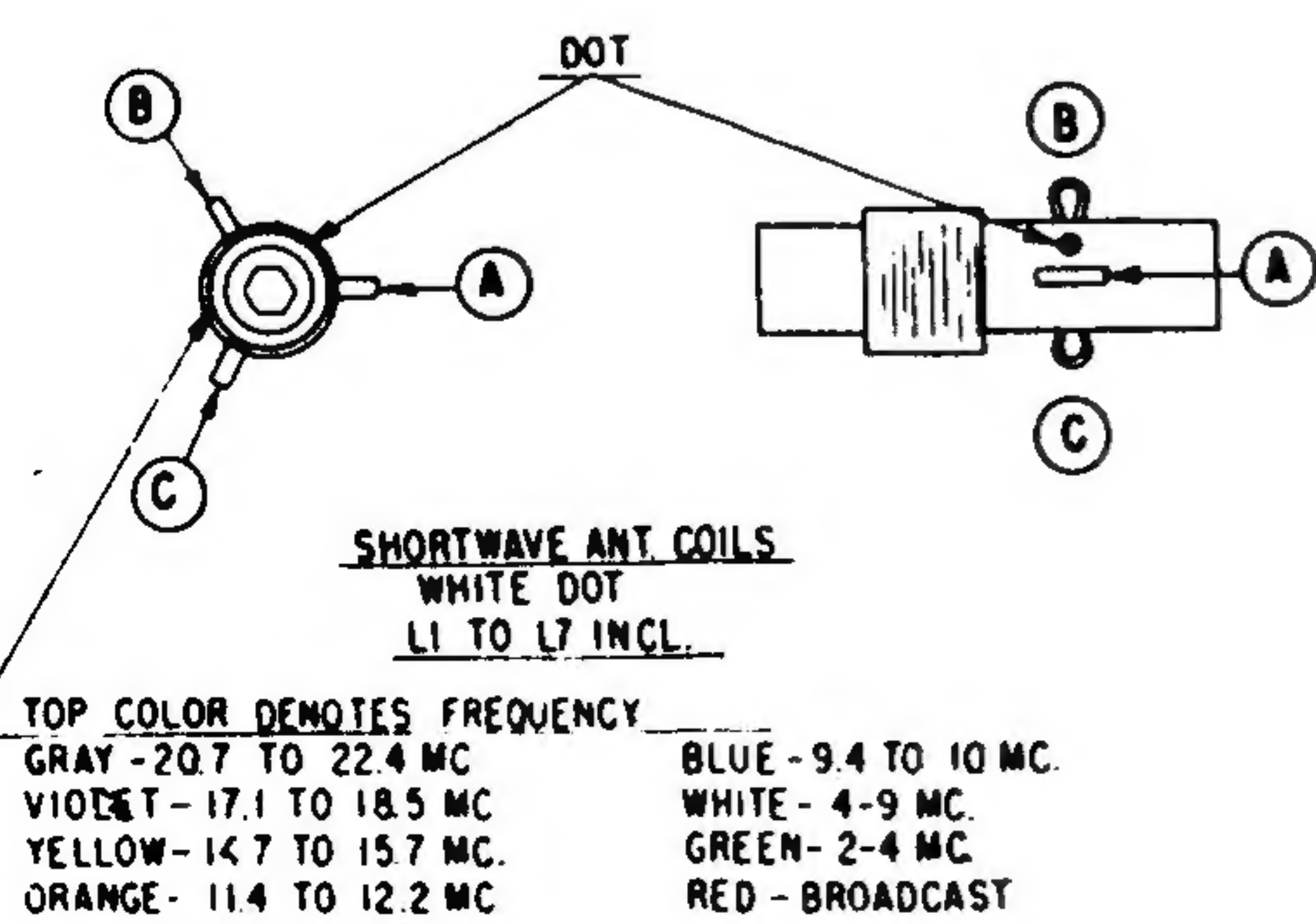
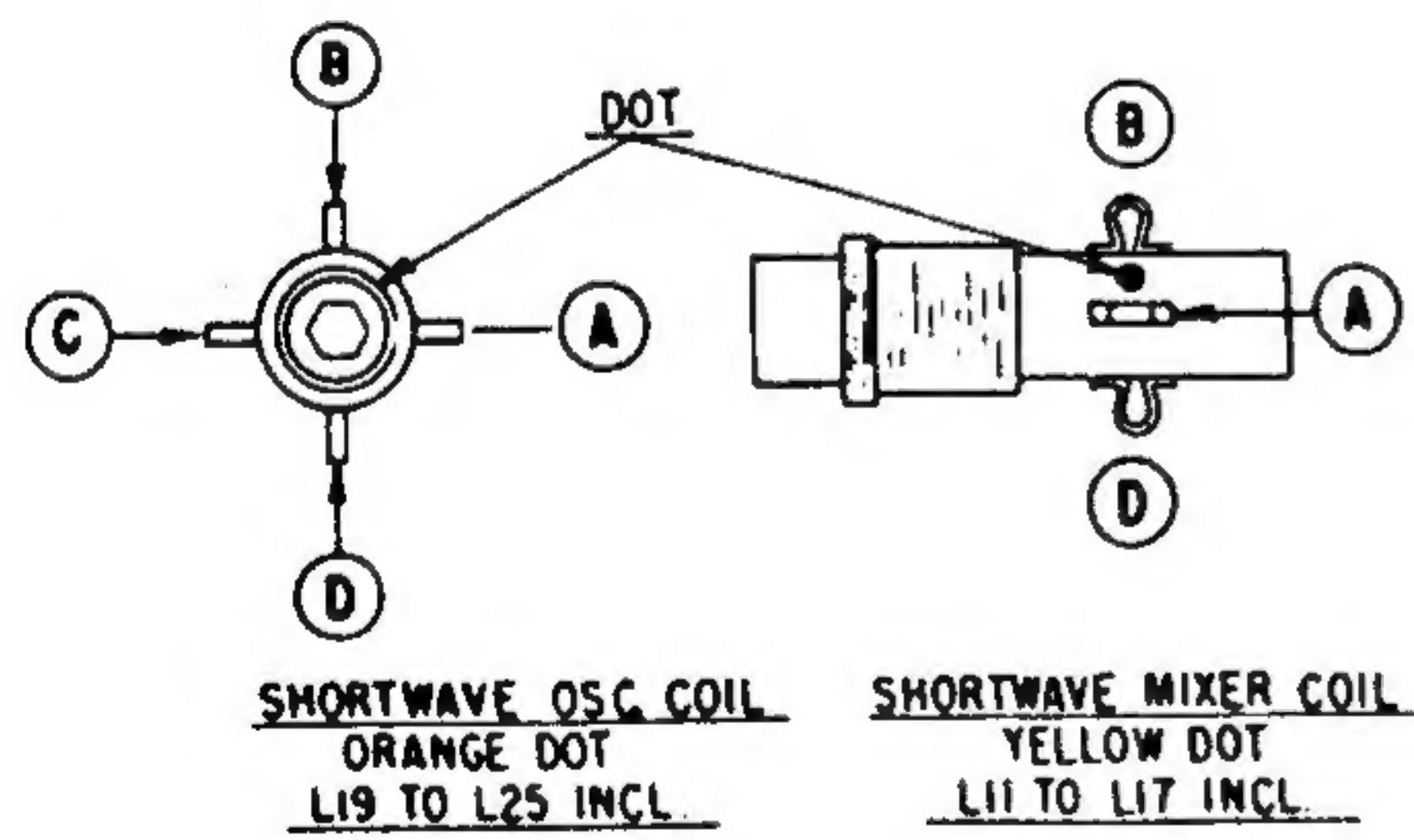
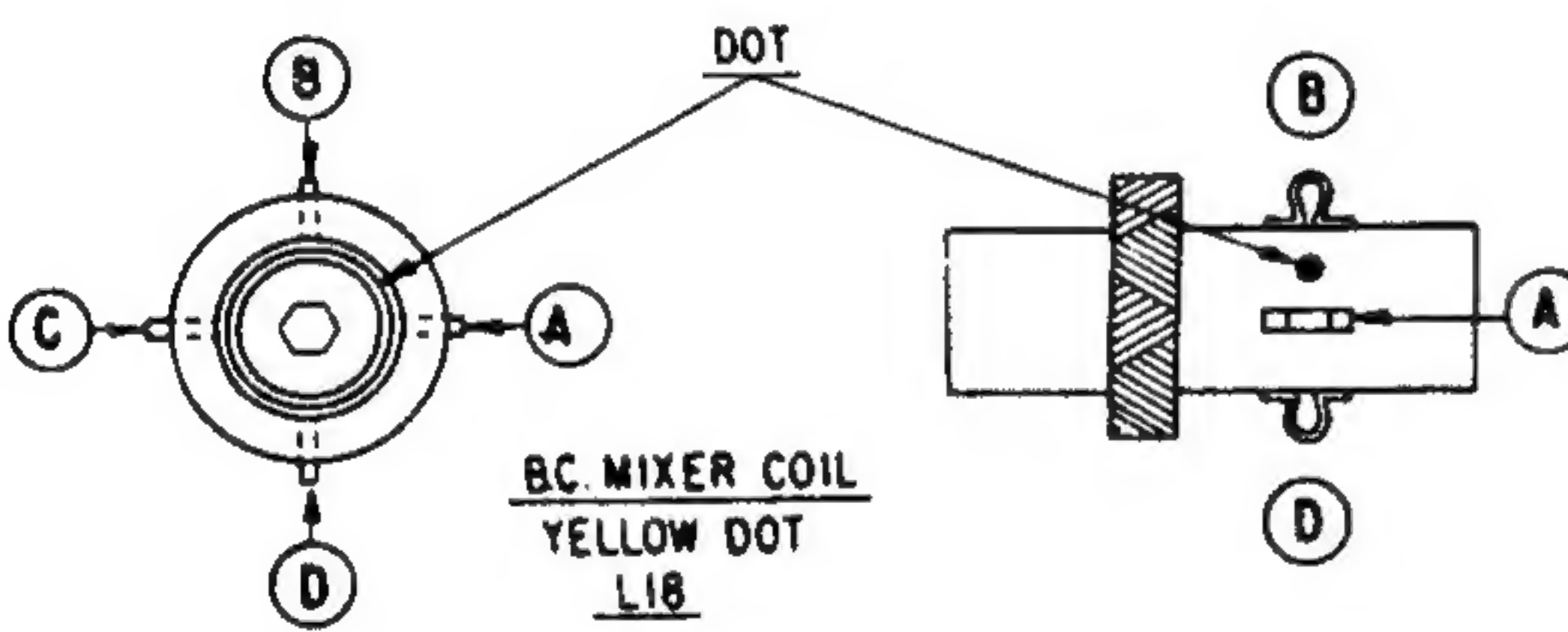
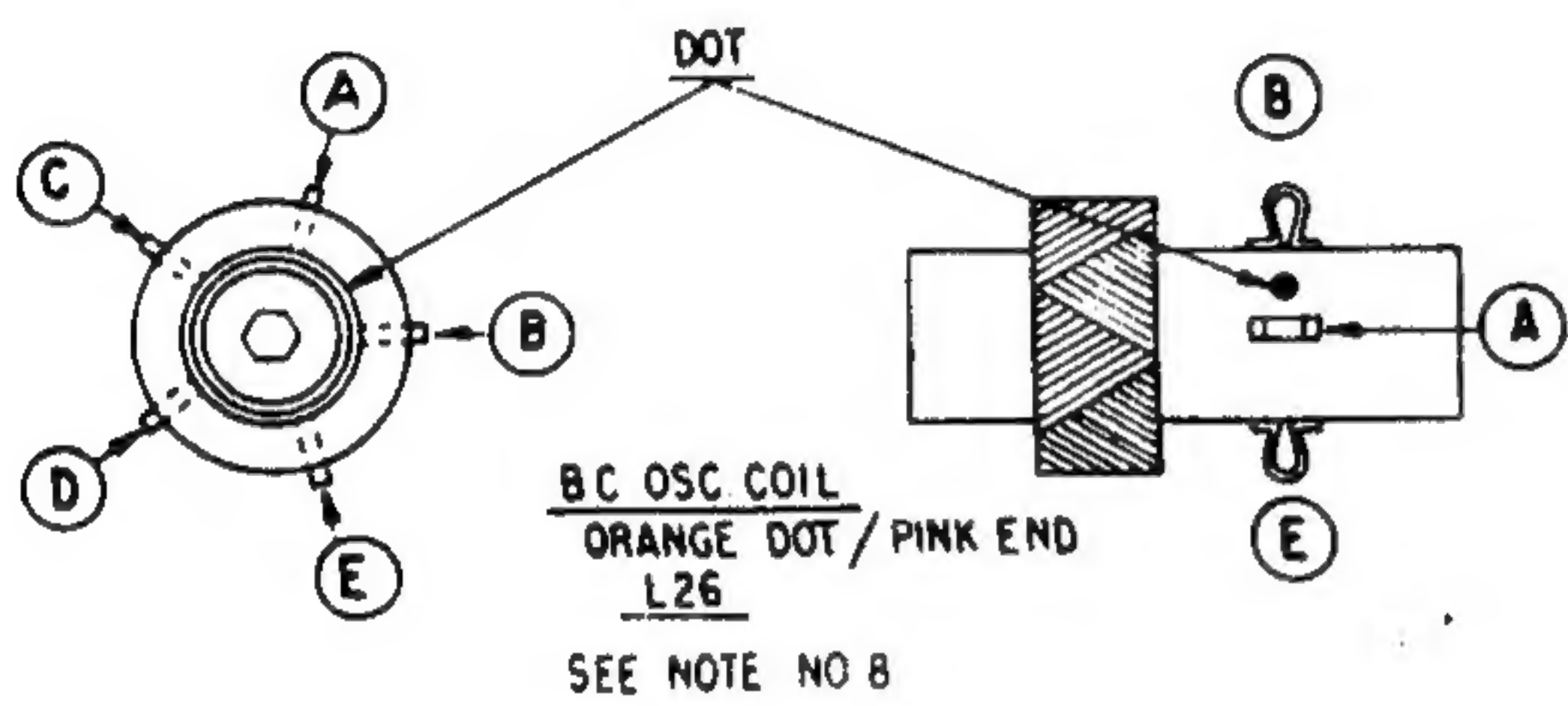
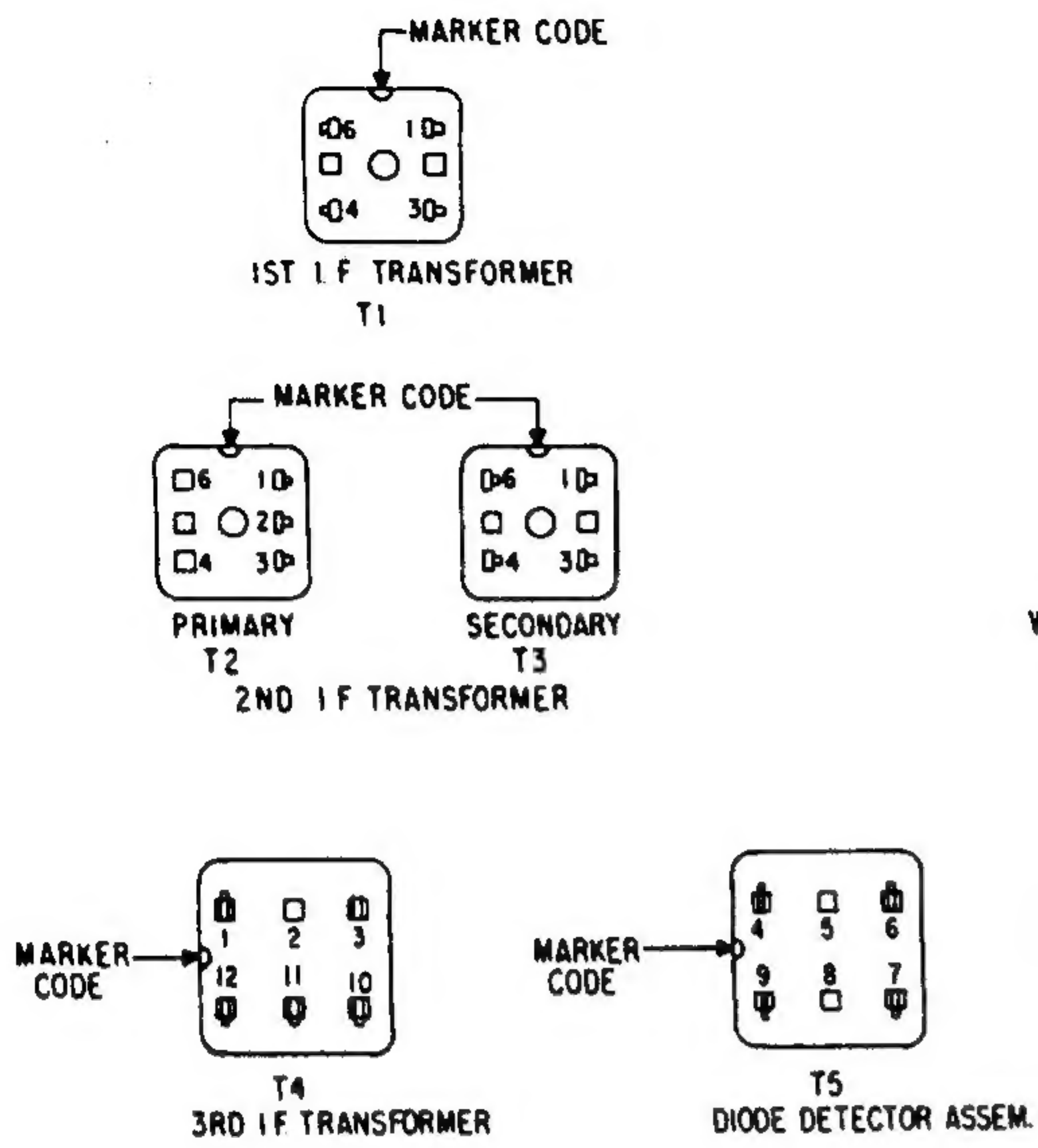
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R.F.



EI WAVE ROD

